Delta Waterfowl & Predator Management - 2004

Final Closeout Report

CFMS # 594829

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2004 Predator Management Site Selection/Location:

In total, the State of Louisiana allocated $120,000 in support of Delta Waterfowl's 2004 Predator Management efforts. As a direct result of these funds, four 36 square mile blocks (92,160 acres in total) of land (Towner, Walsh County and 2 Benson County sites) were trapped by professionals from the approximate period of 15 March through 15 July.

In addition, LA funds paid for nest searching activities on two 36 square mile untrapped control areas, each paired with a previously untrapped block of comparable habitat composition (agriculture, hay land, CRP, native pasture, etc).

On 10 February 2004, representatives from the Louisiana Department of Wildlife and Fisheries (LDWF) and Delta Waterfowl met in Baton Rouge to select proposed locations for each trap and control site. As discussed in 2003, at least two new and previously untrapped sites would be selected in 2004.

With aid of a Predator Management Site Selection Matrix (Figure 1) and GIS generated land use/land cover maps of each potential trap site, a mutual agreement was reached (10 February 2004) on the location of each LA funded trap and control site (Figure 2) for 2004. Comments provided by US Fish and Wildlife Service personnel from North Dakota proved very helpful in selecting additional sites.

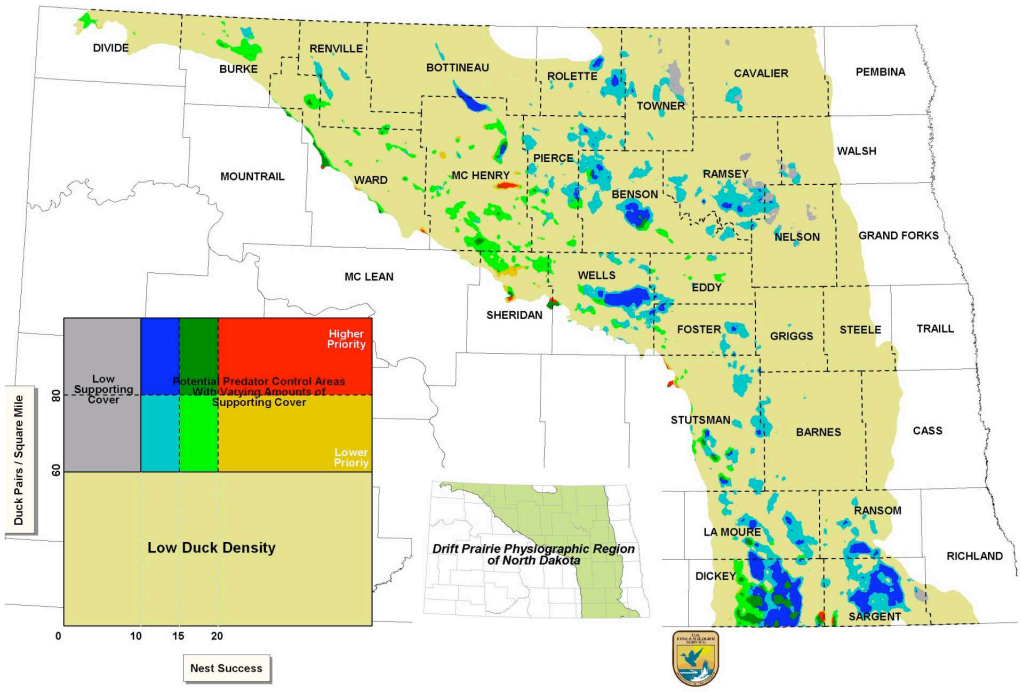


Figure 1. Predator Management Site Selection Matrix created by the US Fish and Wildlife Service's Habitat and Population Evaluation Team (HAPET).

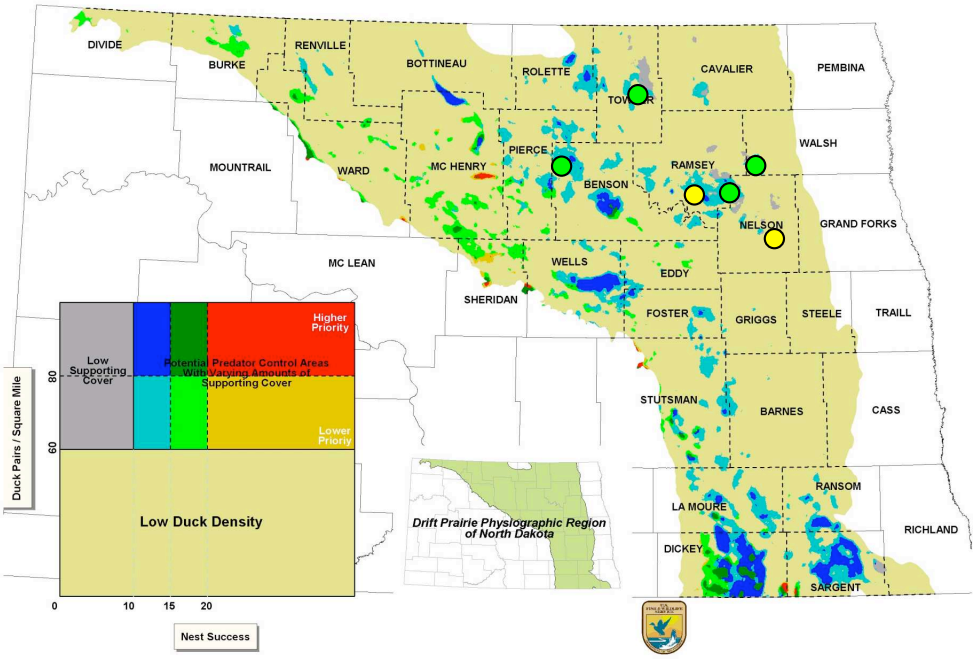


Figure 2. Approximate proposed location of each LA funded trap (n=4) (green) and paired control site (n=2) (yellow) for 2004.

A consensus was reached that two sites from 2003 (Benson and Towner Counties) would once again be trapped in 2004, but not paired with control areas. Additionally, two sets of paired sites were selected from an original pool of eight potential trap sites. A coin toss was used to randomly determine which site was the trap and control for each pair. Due to a lack of sufficient landowner permission, a new pair of sites was selected over the weekend of 20 March (Figure 3). USFWS personnel were consulted throughout this process and LDWF personnel were notified of the shift during the following week. A coin toss was again used to determine site type. The two previously untrapped sites were located in Benson County (hereinafter referred to as the Harlow site) and Walsh County.

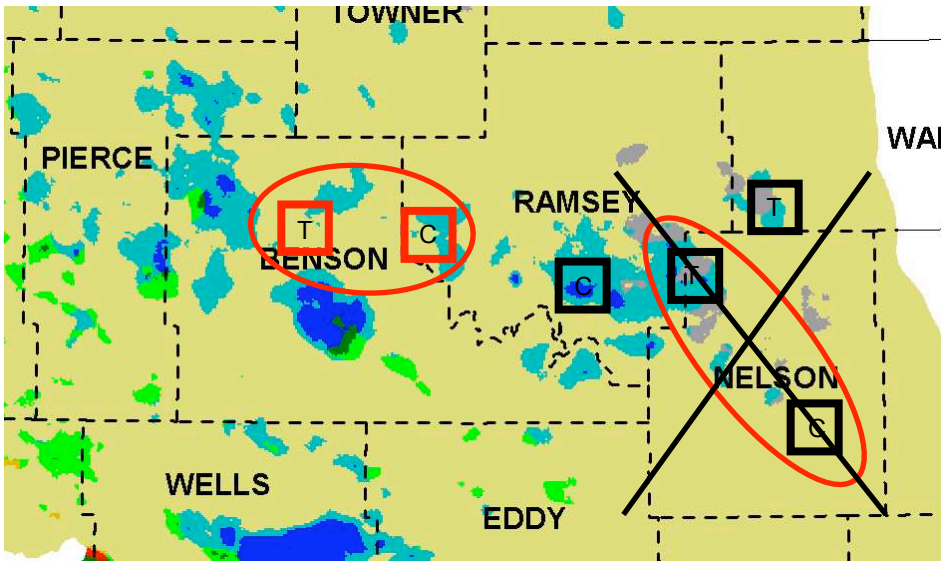


Figure 3. Change in location of paired trap and control site.

All GIS maps used to locate trap and control sites were generated with 1995 land cover data. To correct for land use changes that may have occurred since 1995, field crews verified the cover composition for each trap and control block and made note of changes that occurred in either crop or grass cover acres (e.g. CRP, pasture). All changes in nesting cover were documented prior to the selection of nest dragging sites.

Updated GIS maps and tables detailing the change in acreage by land use category for each trap and control site are included in Attachments 1 – 4. In almost every case, an increase of CRP acreage meant a reduction in cropland acreage and vice-versa.

Except for the Walsh County control site, all sites were 6 miles by 6 miles in size. The Walsh County control site was established as 5 miles by 7 miles in size due the pattern of permission acquired and the availability of habitat to match the grass conditions/composition on the Walsh County trap site.

Timetable of 2004 Trapping and Nest Searching Activities:

Trapping:

Prior to placing traps in the field, we obtained permission to trap on at least 80% (goal of 100%) of each block. For every block of land that is trapped, the professional trapper is required to contact the block landowner and receive written permission to trap their land. Trap placement begins in the spring as soon as landowner permission is secured.

Trapping typically begins in mid-March and runs through mid-July; however, trappers are allowed to voluntarily trap prior to their contract start date. The date of first animal caught ranged from 15 February (Towner County) to 1 April (Walsh County).

Trappers were required to trap daily until contract termination. The date of last animal caught ranged from 12 July (Benson County) to 19 July (Harlow).

Nest Success Evaluation:

Summer technicians were hired to conduct all nest success evalulation duties (nest dragging). Between 15 May and 19 May, all technicians reported to North Dakota for project training (i.e. ATV training, egg candling, etc). Nest dragging was conducted from the period of 20 May through 20 June. All nests were followed until a known fate (hatched, depredated or abandoned) was determined (approximate date of 15 July).

Sample Size, Acres and Time Searched Per Site:

To ensure an adequate sample of nests was obtained, nest searches (using standard nest dragging techniques) were conducted on quarter sections of Class 1 nesting habitat (definition below) within each trap (n = 2) and control (n = 2) site. In order to identify areas of better nesting habitat (Class 1), all quarter sections within each block were classified as one of threes categories:

> **Class 1**: Quarter sections that consisted of undisturbed grass covering at least 80% of the area. This can include hayland if not mowed the past fall, but nearly

always was CRP or Waterfowl Production Area lands. The second criteria was an abundance of wetlands.

Class 2: Uplands not in crop production, including but not limited to pasture, hayland, and recently burned grasslands of any kind. Quarter sections of this category typically contained 25% - 75% grass, although heavily grazed pastures may have constituted 100% of the area. These quarters have few or no wetlands.

Class 3: Includes all quarters with upland habitat primarily in crop production. This also includes quarters that might otherwise be class 1 or 2, but where permission was not granted to access the property. Quarter sections that only contain narrow edge habitats and odd areas (e.g. rock piles, highway right of ways) fall under this category.

All quarter sections to be nest searched were drawn randomly without replacement using uniquely assigned numbers within Class 1. The ranking results for each site are included in Attachments 5 - 8. GIS maps detailing the location of each quarter section searched are provided in attachments 9 - 12.

A minimum sample size of 75 nests per site was identified at a meeting between Delta Waterfowl and LDWF personnel on 5 March 2003. In all cases, the minimum goal was exceeded (Table 1), with sample sizes ranging from 136 (Harlow) to 340 nests (Walsh County trap).

An effort was made to conduct nest dragging activities over a similar number of acres on each paired trap and control site (Table 1).

Table 1. Number of nests located, acres searched and hours searched on each trap and paired control block.

Site	# NESTS	Acres Searched	Time searched
Walsh Trap	340	1,440	58.5
Walsh Control	208	1,160	61.5
Harlow Trap	136	730	45.3
Harlow Control	145	720	38

Species Composition of Predators Removed:

On all trap sites, skunk and raccoon were the top two predators captured. When combined, skunk and raccoon comprised from 74.4% (Benson County) to 92.7% (Towner County) of the total catch on each site (Table 2). In total, the number of predators removed per site ranged from 234 (Towner County) to 374 (Walsh County) animals (Table 2). The weasel was a poorly represented species (n=3) and is not included in Table 2. Daily catch records for each trap site are provided in Attachment 13.

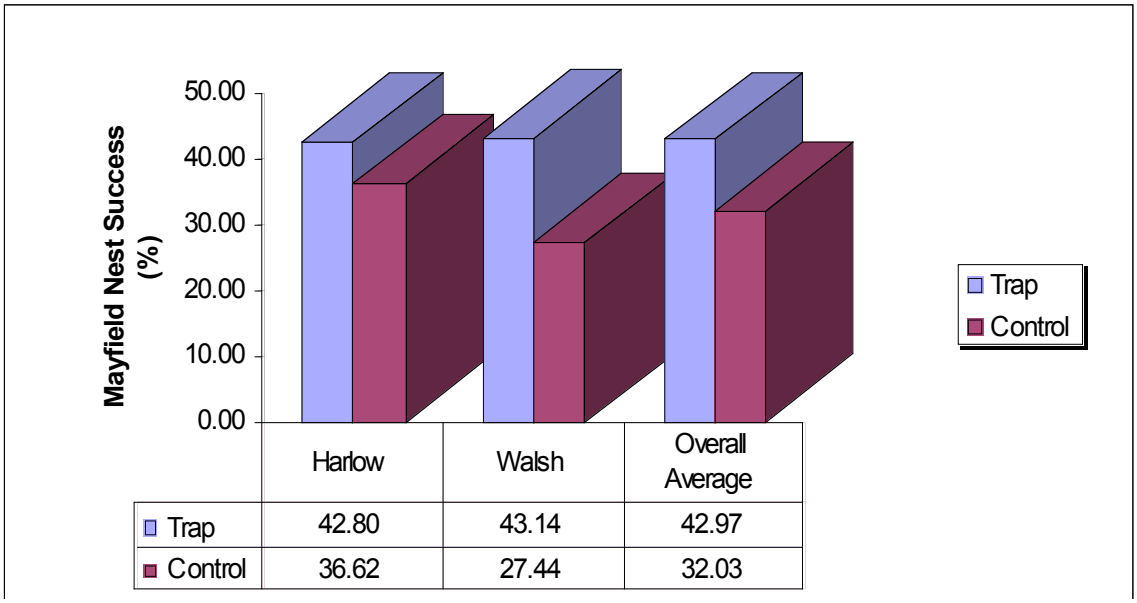
Table 2. Number of predators removed by species per trap site and cumulative total removed by site and species.

	Skunk	Raccoon	Red Fox	Coyote	Mink	Badger	Total
Towner	144	73	5	0	5	7	**234**
Benson	112	92	36	7	11	16	**274**
Harlow	107	112	8	1	6	16	**250**
Walsh	164	164	22	2	14	8	**374**
Total	527	441	71	10	36	47	**1132**
% Total	**46.6**	**39.0**	**6.3**	**0.9**	**3.2**	**4.2**	**100.0**

Mayfield Nest Success Estimates:

In 2004, nest success was approximately 11% higher on trap blocks (n=2) in comparison to the untrapped control areas (n=2). Mayfield nest success estimates are presented in Figure 4 for each trap and paired control site. Confidence intervals (95 percent) for all ducks, mallard, gadwall and blue-winged teal are detailed in Attachment 14.

The perceived cause of failure for each nest by site is included in Attachment 15 – *Nest Fate Summary Table – 2004*.



	Harlow	Walsh	Overall Average
Trap	42.80	43.14	42.97
Control	36.62	27.44	32.03

Figure 4. Mayfield nest success estimates for each paired trap and control site – estimates by site and overall trap vs. control average.

Waterfowl Species Composition:

Mallard (18.5%), blue-winged teal (51.7%) and gadwall (12.9%) represented the top three duck species present (Table 3). Mallards, blue-winged teal and gadwall also represent three of the top four duck species harvested by Louisiana duck hunters during the 2003 – 2004 waterfowl hunting season (Figure 5).

Table 3. Number of duck nests detected by species for each paired trap and control site.

	BW Teal	Gadwall	Mallard	Shoveler	Pintail	Scaup	Redhead	Total
Harlow Trap	23	26	46	30	11	0	0	**136**
Harlow Control	77	18	25	9	15	1	0	**145**
Walsh Trap	212	49	34	34	11	0	0	**340**
Walsh Control	117	14	48	22	6	0	1	**208**
Total	429	107	153	95	43	1	1	**829**
% Total	**51.7**	**12.9**	**18.5**	**11.5**	**5.2**	**0.1**	**0.1**	**100**

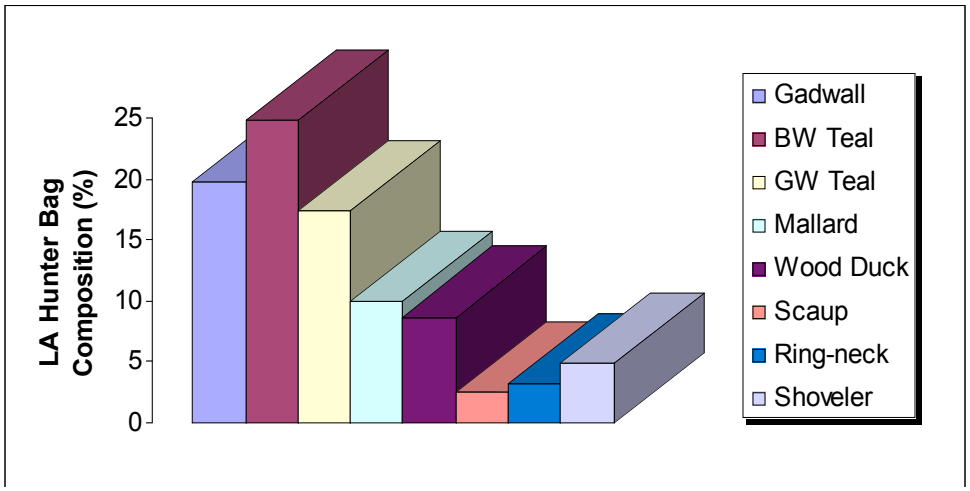


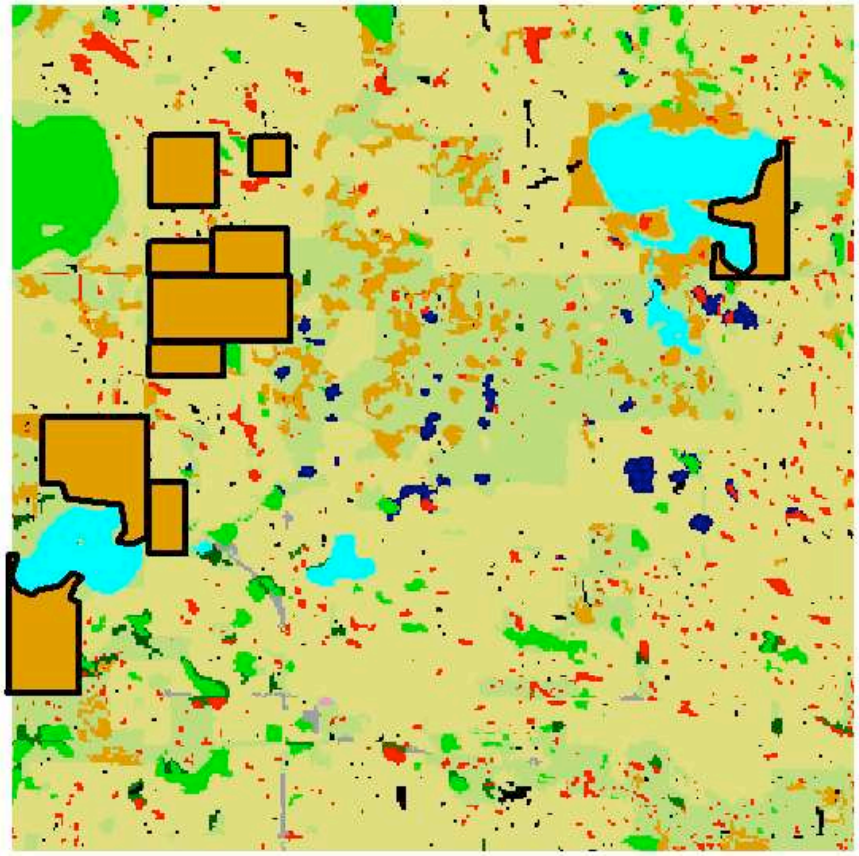
Figure 5. Percent bag composition by species for the 2003 - 2004 LA waterfowl hunting season – top eight species.

Other Areas:

In total, 8 sites were trapped by Delta Waterfowl in support of its partners during 2004. A newly updated Delta Waterfowl document detailing additional nest success results (not additional Louisiana funded sites) will be circulated to the state of Louisiana and other partners shortly.

ATTACHMENT 1

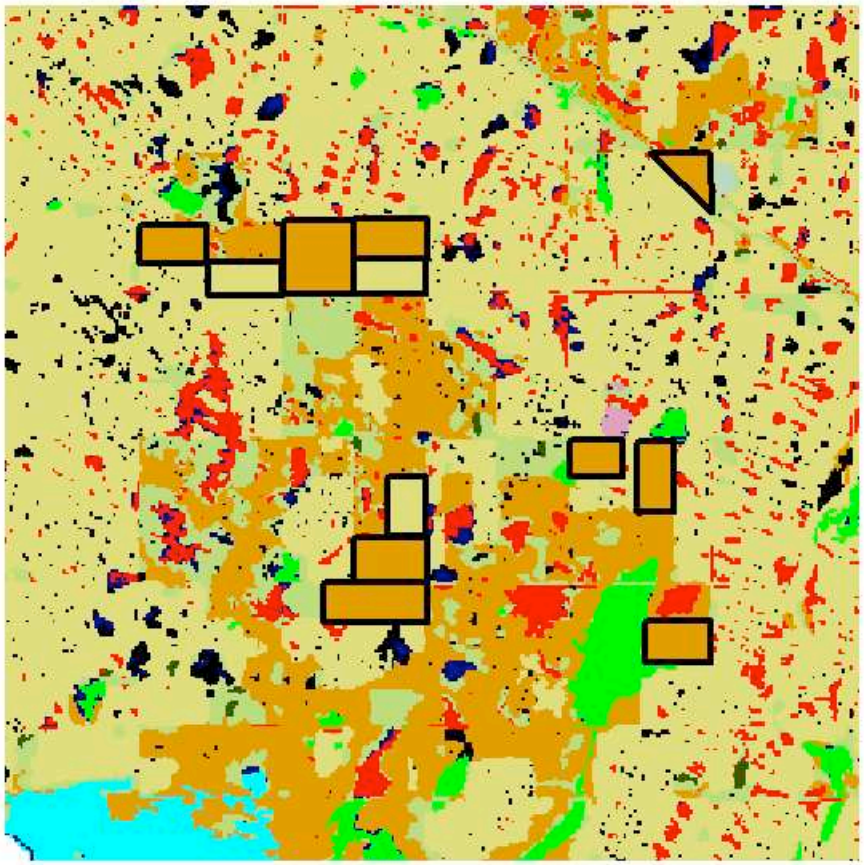
Harlow Trap – Change in Land Use



Land use	1995 Acres	2004 Acres	% total
other water	216.0	-	0.9
native grass	4,707.4	-	20.4
CRP	1,165.2	2,745.2	11.9
hayland	3.3	-	0.0
cropland	13,930.7	12,350	53.6
forest	77.2	-	0.3
urban	67.6	-	0.3
cloud cover	0.0	-	0.0
shrub	0.0	-	0.0
barren	0.0	-	0.0
temporary wetland	164.1	-	0.7
seasonal wetland	691.7	-	3.0
semipermanent wetland	1,054.3	-	4.6
lake	867.4	-	3.8
river	0.0	-	0.0
riparian	95.1	-	0.4
Total	23,040		100.0

ATTACHMENT 2

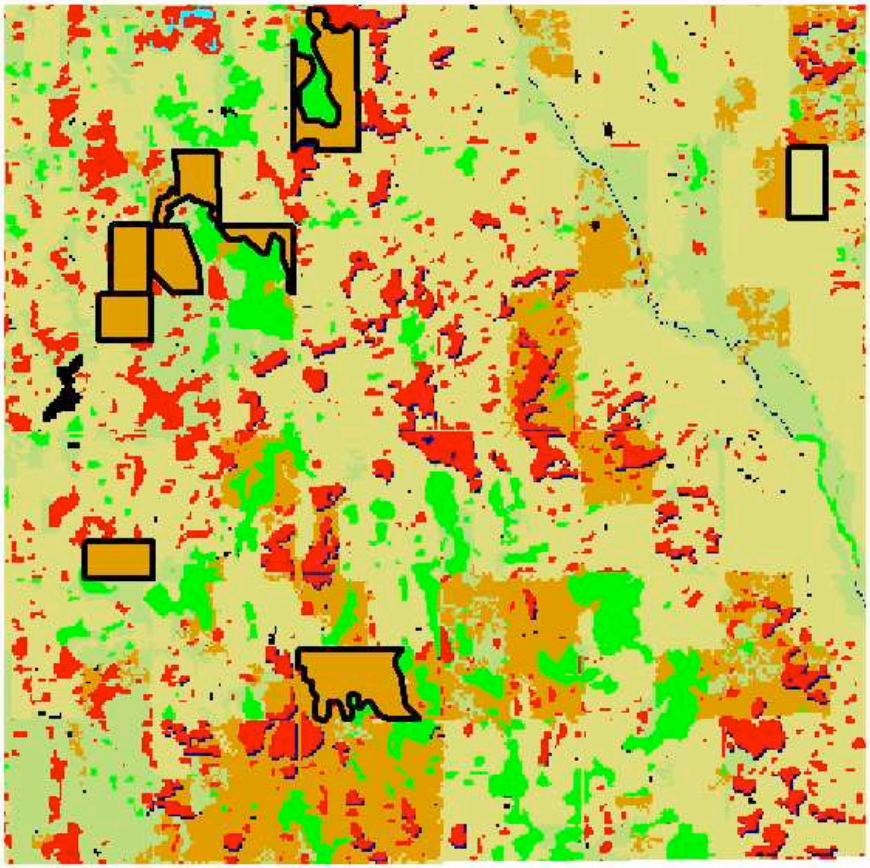
Harlow Control – Change in Land Use



Land use	1995 Acres	2004 Acres	% total
other water	358.8	-	1.6
native grass	2,267.8	-	9.8
CRP	3,915.7	4,415.7	19.2
hayland	49.1	-	0.2
cropland	12,741.4	12,241.4	53.1
forest	54.2	-	0.2
urban	29.6	-	0.1
cloud cover	0.0	-	0.0
shrub	0.0	-	0.0
barren	0.0	-	0.0
temporary wetland	777.6	-	3.4
seasonal wetland	1,629.1	-	7.1
semipermanent wetland	723.1	-	3.1
lake	490.0	-	2.1
river	3.7	-	0.0
riparian	0.0	-	0.0
Total	23,040		100.0

ATTACHMENT 3

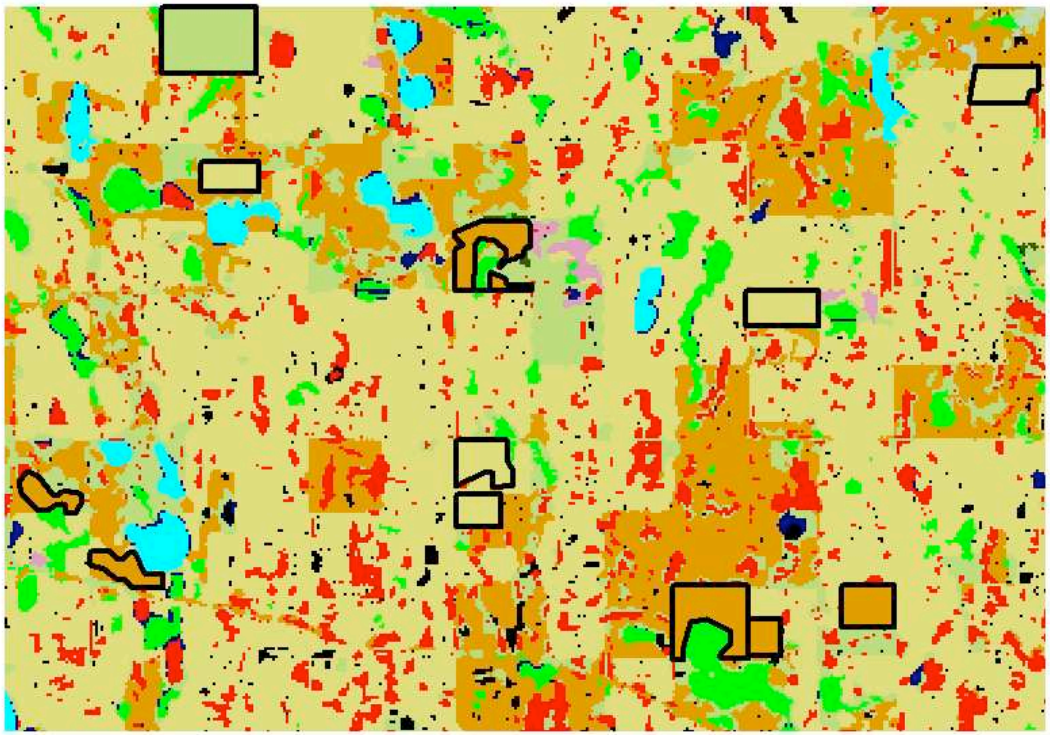
Walsh Trap – Change in Land Use



Land use	1995 Acres	2004 Acres	% total
other water	0.0	-	0.0
native grass	3,392.2	-	14.7
CRP	2,848.5	3,708.5	12.4
hayland	0.0	-	0.0
cropland	11,818.2	10,958.2	51.3
forest	0.0	-	0.0
urban	0.0	-	0.0
cloud cover	0.0	-	0.0
shrub	0.0	-	0.0
barren	0.0	-	0.0
temporary wetland	100.4	-	0.4
seasonal wetland	2,672.2	-	11.6
semipermanent wetland	1,885.0	-	8.2
lake	16.5	-	0.1
river	307.1	-	1.3
riparian	0.0	-	0.0
Total	23,040		100.0

ATTACHMENT 4

Walsh Control – Change in Land Use



Land use:	1995 Acres	2004 Acres	% total
other water	232.6	-	1.0
native grass	2,226.9	2,326.9	10.4
CRP	4,077.0	4,147.0	18.5
hayland	79.3	-	0.4
cropland	11,955.5	11,785.5	52.6
forest	17.4	-	0.1
urban	20.1	-	0.1
cloud cover	0.0	-	0.0
shrub	0.0	-	0.0
barren	0.0	-	0.0
temporary wetland	288.7	-	1.3
seasonal wetland	1,892.6	-	8.4
semipermanent wetland	1,184.0	-	5.3
lake	425.9	-	1.9
river	0.0	-	0.0
riparian	0.0	-	0.0
Total	22,400		100.0

ATTACHMENT 5

Harlow Trap Ranking Results

Class 1	Class 2	Class 3
5NE	2NE	1
5NW	2NW	2S
5SE	3NE	3S
8NW	4SW	3NW
8SW	5SW	4N
8SE	8NE	4SE
24S	9SW	6
25SE/30W	12SW	7
28NW	13SE	9N
28SE	13SW	9SE
29E	16NW	10
33NW	17NE	11
33SW	17NW	12NE
33NE	18SW	12S
34NE	18SE	13N
	22NE	14
	22SE	15
	25NW	16NE
	25SW	16S
	26NW	17S
	27S	18N
	28NE	19
	28SW	20
	29SW	21
	30E	22W
	31NW	23
	32N	24N
	33SE	26NE
	34NW	26S
	34SW	27N
	34SE	31NE
	35	31S
	36	32S

20	21	22	23	24	19
29	28	27	26	25	30
32	33	34	35	36	31
5	4	3	2	1	6
8	9	10	11	12	7
17	16	15	14	13	18

ATTACHMENT 6

Harlow Control Ranking Results

Class 1	Class 2	Class 3
3NE	2NW	1
3SW	2NE	2SW
5NW	2SE	3SE
5NE	3NW	4N
5SW	4SE	4SW
5SE	9NW	6
8E	10W	7
9NE	14NE	8W
9S	22NW	11SE
10W	23SE	12
11NE	26NE	13
17N	27SW	14NW
22NE	28SE	14S
24SW	29SE	18N
28SW	33NW	19
29N	35SW	20
33SW		21
34SW		22S
		23N
		23SW
		24N
		24SE
		25
		26NW
		26S
		27N
		27SE
		28N
		29SW
		30
		31
		32
		33E
		34N
		34SE
		35N
		35SE
		36

19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13

ATTACHMENT 7

Walsh Trap Ranking Results

Class 1	Class 2	Class 3
1SW	2E	1N
4SE	3NE	1SE
8SW	6NE	2W
11NW	8NW	3NW
11SW	8E	3S
11SE	9NW	4N
18NE	10NE	4SW
18SE	10SE	5
20NW	14NE	6NW
23NE	14NW	6S
25SW	14SW	7
25SE	15NE	9NE
28NW	16NW	9S
28SW	21NE	10W
29SE	23SE	11NE
30NW	24SW	12
30SW	25NW	13
35NE	27NE	14SE
35SW	27SE	15NW
35SE	28SE	16NE
	34NW	16S
	34NE	17
	34SW	18W
	35NW	19
		20NE
		20S
		21NW
		21S
		22
		23W
		24N
		24SE
		25NE
		26
		27W
		28NE
		29N
		29SW

3	2	1	6	5	4
10	11	12	7	8	9
15	14	13	18	17	16
22	23	24	19	20	21
27	26	25	30	29	28
34	35	36	31	32	33

		30E
		31
		32
		33
		34SE
		36

ATTACHMENT 8

Walsh Control Ranking Results

Class 1	Class 2	Class 3
2NW	1NW	1NE
SM-4NW	3NW	1S
SM-4NE	SM-4SW	2NE
SM-4SE	St-4SE	2S
5NW	6NW	3NE
5SW	7SE	3S
6NE	8NE	St-4N
6SW	8SW	St-4SW
6SE	SM-9SE	5E
7NW	12NE	7SW
7NE	20NE	8NW
12NW	M-21SW	8SE
12SW	23SE	St-9
12SE	24SW	SM-9N
20SW	24SE	SM-9SW
20SE	25S	10
O-21NW	26NW	11
O-21NE	26SW	19
23NE	26SE	20NW
24NW	27SW	O-21S
25NW	29N	M-21N
26NE	O-33NE	M-21SE
M-28NE	M-33E	22
31SE	36NE	23W
O-33SW		24
O-33SE		25NE
		27N
		27SE
		M-28NW
		M-28S

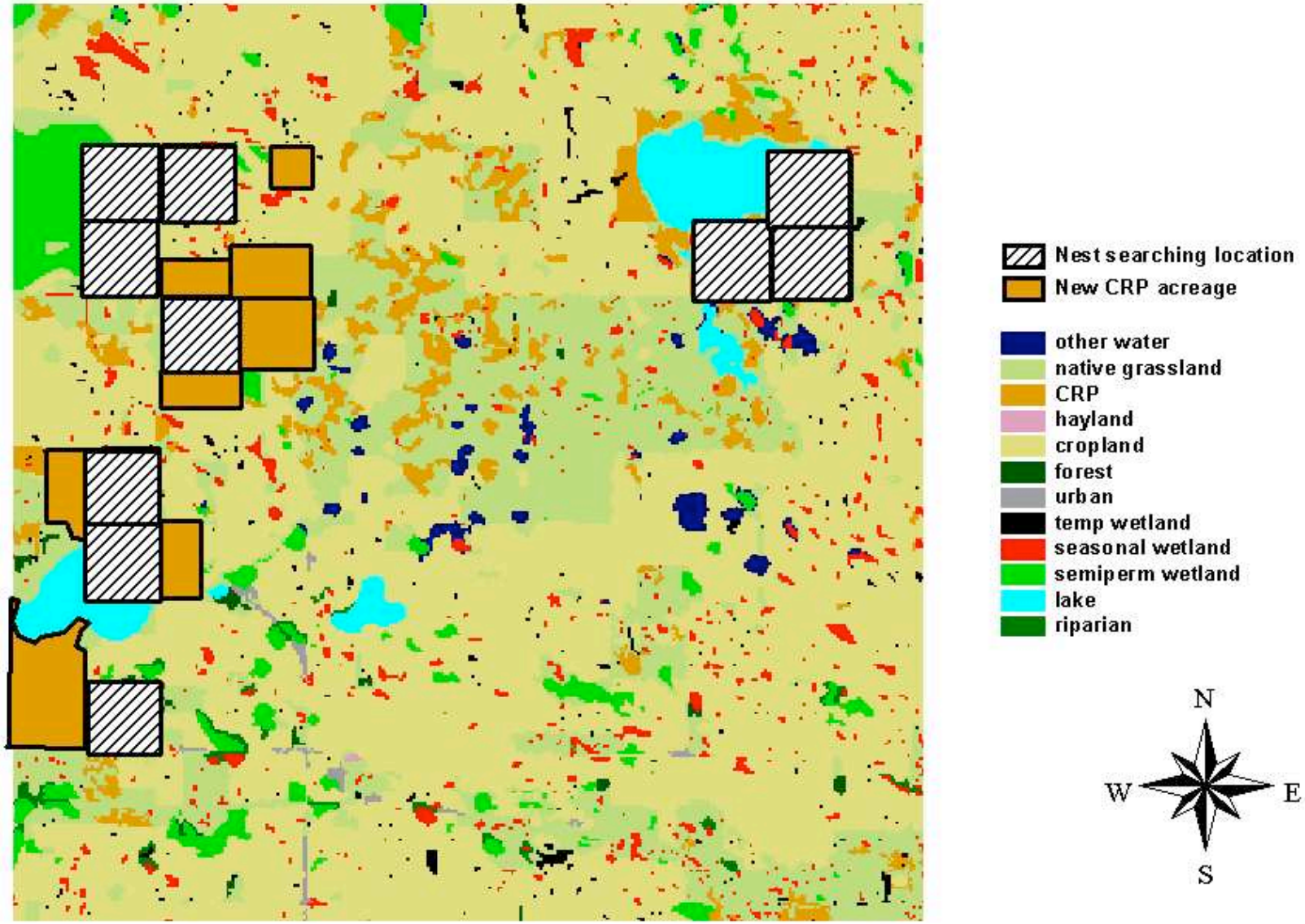
M 21	M 22	M 23	M 24	O 19	O 20	O 21
M 28	M 27	M 26	M 25	O 30	O 29	O 28
M 33	M 34	M 35	M 36	O 31	O 32	O 33
SM 4	SM 3	SM 2	SM 1	St 6	St 5	St 4
SM 9	SM 10	SM 11	SM 12	St 7	St 8	St 9

M - Minnewaukan township

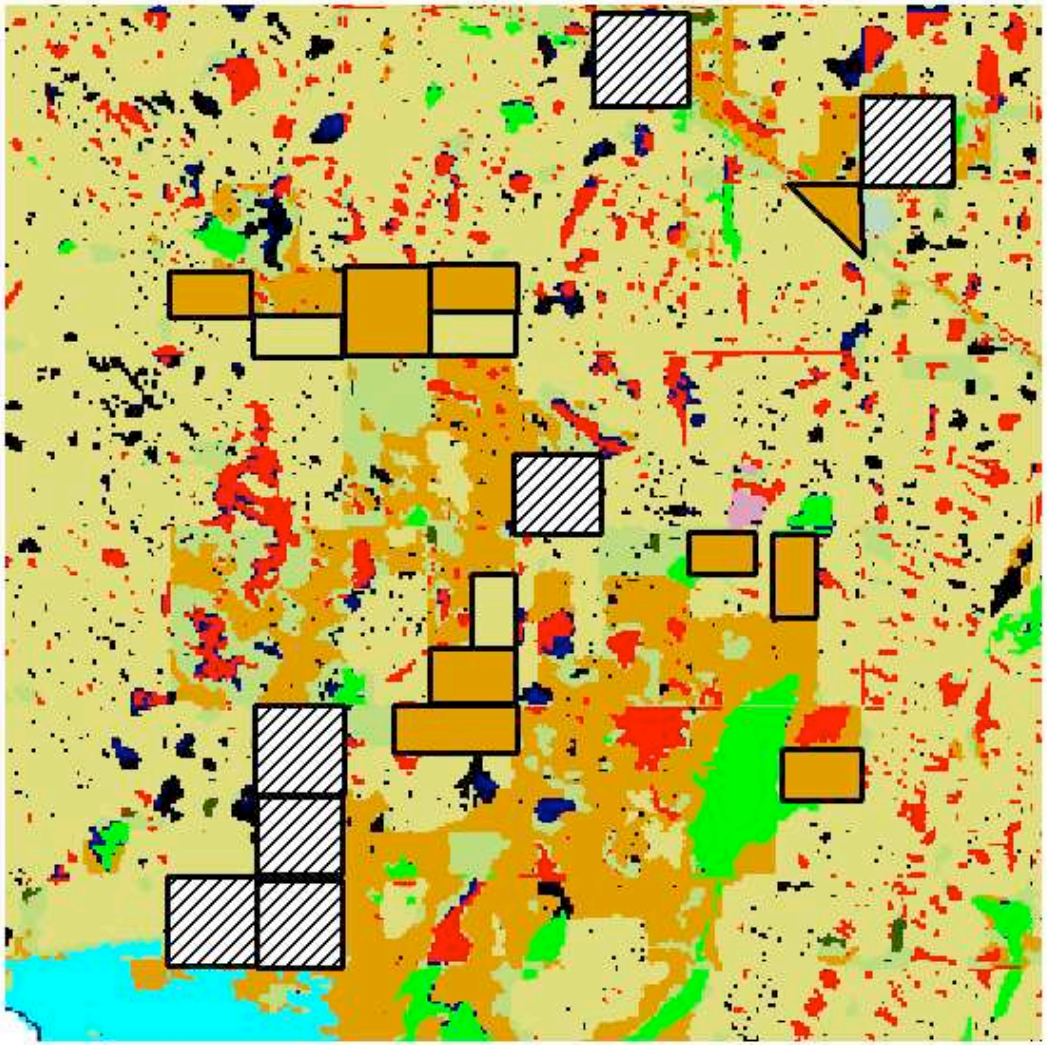
O - Ontario township
SM - South Minnewaukan township
St - Stevens township

		O-28
		29S
		30
		31N
		31SW
		32
		O-33NW
		M-33W
		34
		35
		36NW
		36S

Attachment 9 – Harlow Trap Block
Nest Searching Locations



Attachment 10 – Harlow Control Block
Nest Searching Locations

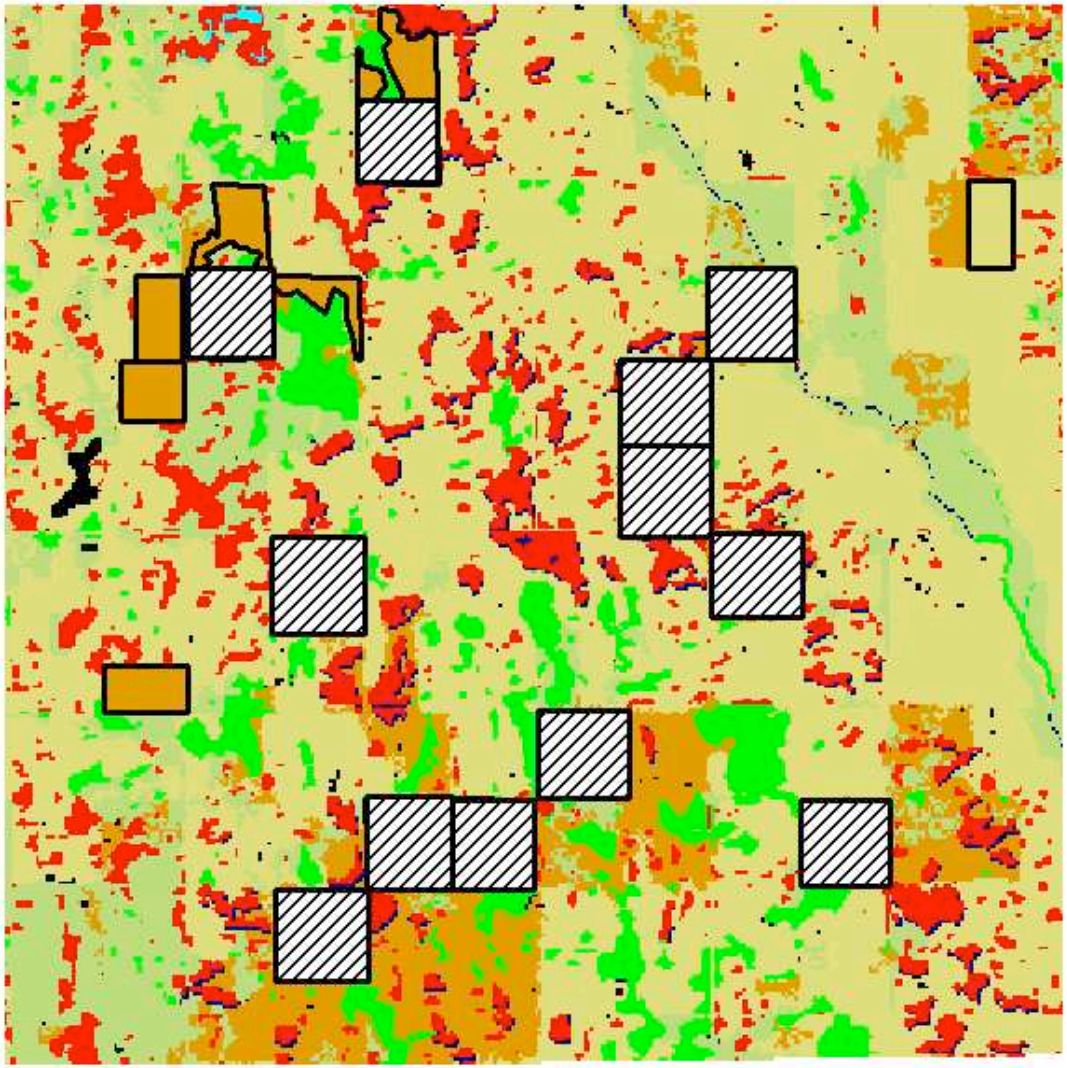


Nest searching location
new crop acreage
new CRP acreage

other water
native grassland
CRP
hayland
cropland
forest
urban
temp wetland
seas wetland
semiperm wetland
lake
river

N
W
E
S

Attachment 11 – Walsh Trap Block
Nest Searching Locations

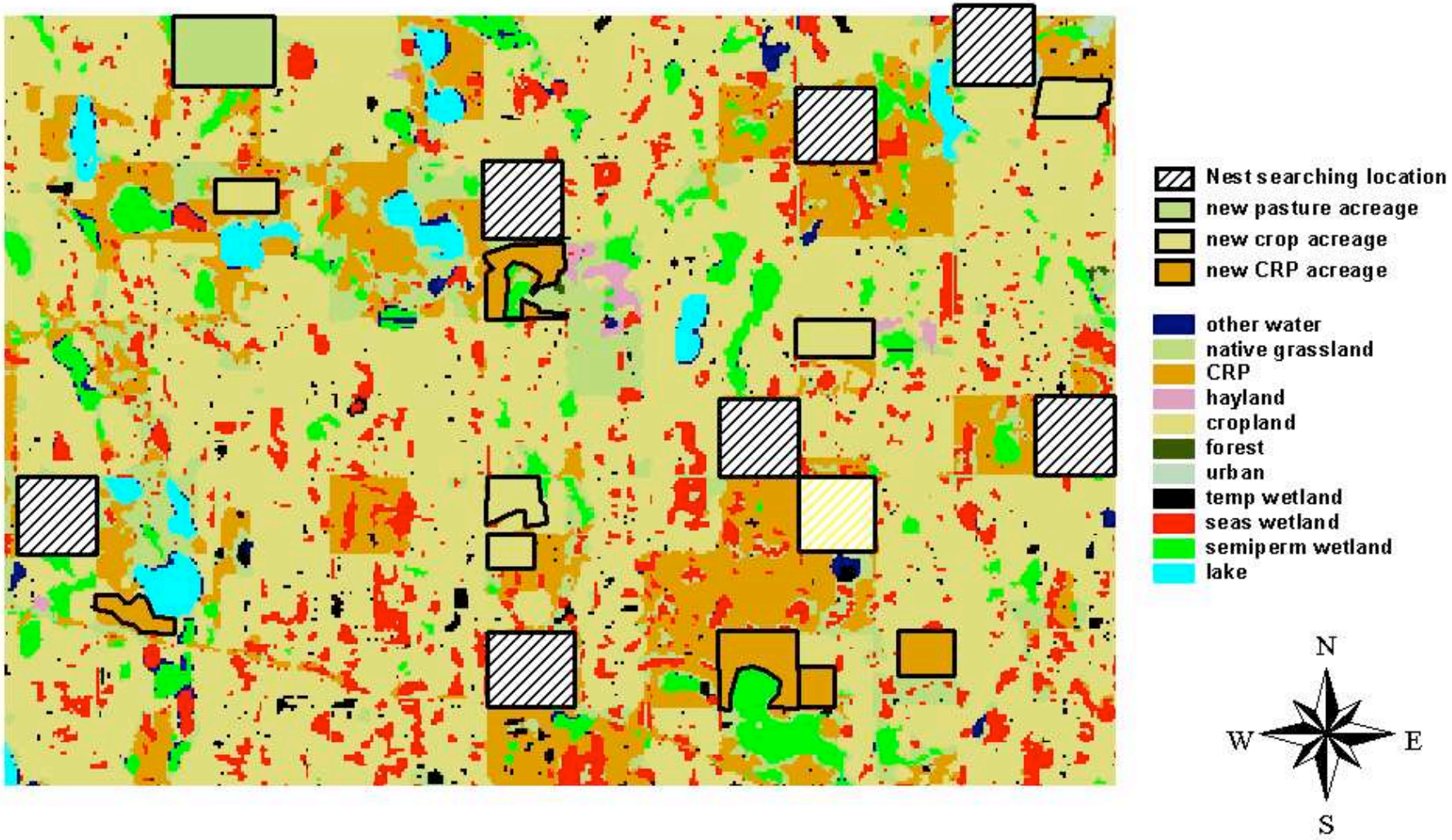


Nest searching location
new crop acreage
new CRP acreage

native grass
CRP
cropland
temp wetland
seasonal wetland
semiperm wetland
lake
river

N
W
E
S

Attachment 12 – Walsh Control Block
Nest Searching Locations



ATTACHMENT 13

2004 Trapping Reports

SK = skunk
RCN = raccoon
COY = coyote
FX = red fox
WSL = weasel
MNK = mink
BGR = badger
FGS = Franklin's ground squirrel

Benson County 1	
Date	***Species***
3/11	FX
3/14	RCN
3/14	RCN
3/15	RCN
3/15	SK
3/15	SK
3/15	SK
3/15	SK
3/15	RCN
3/15	RCN
3/15	RCN
3/15	RCN
3/15	RCN
3/16	RCN
3/16	RCN
3/16	RCN
3/16	RCN
3/16	RCN
3/16	RCN
3/16	RCN
3/17	RCN
3/18	SK
3/18	SK
3/18	SK
3/18	RCN
3/18	RCN
3/18	RCN
3/18	RCN
3/19	COY
3/19	SK
3/19	RCN

Benson County 2	
Date	***Species***
3/26	RCN
3/26	SK
3/29	SK
3/29	MNK
3/30	SK
3/31	SK
3/31	RCN
3/31	RCN
4/1	SK
4/1	RCN
4/2	RCN
4/3	SK
4/3	SK
4/4	RCN
4/4	RCN
4/4	SK
4/4	SK
4/5	RCN
4/5	SK
4/6	RCN
4/6	RCN
4/6	MNK
4/7	SK
4/7	MNK
4/8	RCN
4/8	SK
4/8	SK
4/9	RCN
4/9	RCN
4/9	RCN
4/9	RCN

Towner County	
Date	***Species***
2/15	FX
2/20	RCN
2/21	RCN
2/24	MNK
2/29	RCN
3/9	RCN
3/12	RCN
3/12	RCN
3/12	RCN
3/23	SK
3/25	SK
3/25	RCN
3/28	SK
3/28	RCN
3/28	RCN
3/30	SK
3/30	SK
3/31	SK
3/31	SK
4/1	RCN
4/1	SK
4/1	SK
4/1	SK
4/2	SK
4/2	SK
4/2	SK
4/3	FX
4/4	SK
4/5	SK
4/6	RCN
4/7	SK

Walsh County	
Date	***Species***
4/1	MNK
4/1	MNK
4/2	FX
4/4	MNK
4/4	MNK
4/5	SK
4/6	BGR
4/8	RCN
4/8	RCN
4/14	RCN
4/14	RCN
4/14	RCN
4/14	RCN
4/14	RCN
4/14	RCN
4/14	RCN
4/14	RCN
4/14	RCN
4/14	RCN
4/14	SK
4/14	SK
4/14	MNK
4/14	MNK
4/16	RCN
4/16	RCN
4/16	RCN
4/16	RCN
4/16	MNK
4/16	MNK
4/16	MNK
4/16	SK
4/19	RCN

3/19	SK	4/9	SK	4/7	SK	4/19	RCN
3/19	SK	4/10	MNK	4/8	RCN	4/19	RCN
3/19	RCN	4/12	SK	4/8	RCN	4/19	SK
3/22	SK	4/12	RCN	4/8	SK	4/20	RCN
3/22	RCN	4/12	BGR	4/8	SK	4/20	SK
3/22	SK	4/12	MNK	4/8	SK	4/20	SK
3/22	RCN	4/13	SK	4/8	SK	4/20	SK
3/24	RCN	4/14	SK	4/9	SK	4/20	SK
3/24	RCN	4/14	RCN	4/10	SK	4/20	MNK
3/25	RCN	4/14	SK	4/10	SK	4/23	RCN
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3/26	SK	4/15	SK	4/15	RCN	4/23	RCN
3/28	SK	4/16	RCN	4/15	SK	4/23	RCN
3/28	RCN	4/16	SK	4/15	SK	4/23	SK
3/29	RCN	4/16	RCN	4/15	SK	4/23	SK
3/29	SK	4/17	RCN	4/16	SK	4/23	SK
3/29	SK	4/17	RCN	4/16	SK	4/23	SK
3/29	RCN	4/17	RCN	4/16	SK	4/23	COY
3/31	MNK	4/17	SK	4/16	SK	4/26	RCN
3/31	RCN	4/17	RCN	4/16	SK	4/26	RCN
3/31	SK	4/19	RCN	4/16	SK	4/26	RCN
4/1	SK	4/19	SK	4/17	SK	4/26	SK
4/2	SK	4/19	SK	4/17	SK	4/26	SK
4/2	SK	4/19	SK	4/17	SK	4/28	SK
4/3	SK	4/19	RCN	4/17	SK	4/28	COY
4/3	RCN	4/19	RCN	4/17	RCN	4/29	SK
4/4	RCN	4/19	BGR	4/18	SK	4/29	SK
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4/10	BGR	4/22	RCN	4/23	SK	5/4	SK
4/10	SK	4/23	SK	4/23	SK	5/4	SK
4/10	MNK	4/23	RCN	4/24	SK	5/4	SK
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4/14	BGR	4/24	SK	4/27	MNK	5/4	RCN
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4/14	BGR	4/26	SK	4/28	SK	5/4	BGR
4/15	SK	4/26	SK	4/28	SK	5/6	SK
4/15	SK	4/26	SK	4/30	SK	5/6	SK
4/15	COY	4/27	RCN	4/30	MNK	5/6	SK
4/15	SK	4/27	SK	4/30	BGR	5/6	RCN
4/15	SK	4/27	RCN	4/30	RCN	5/6	RCN
4/15	RCN	4/27	SK	5/1	SK	5/7	SK
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4/16	RCN	4/28	RCN	5/3	SK	5/7	SK
4/17	MNK	4/28	SK	5/4	SK	5/7	SK
4/17	SK	4/28	RCN	5/5	SK	5/7	RCN
4/17	SK	4/28	RCN	5/5	SK	5/7	RCN
4/17	MNK	4/28	RCN	5/5	SK	5/7	RCN
4/18	SK	4/29	RCN	5/5	SK	5/7	MNK
4/18	BGR	4/29	BGR	5/5	SK	5/8	RCN
4/18	SK	4/29	SK	5/6	SK	5/8	RCN
4/19	SK	4/30	SK	5/7	SK	5/8	SK
4/19	COY	4/30	SK	5/7	RCN	5/8	SK
4/19	SK	4/30	SK	5/8	BGR	5/8	SK
4/19	SK	4/30	SK	5/8	SK	5/8	BGR
4/20	SK	4/30	RCN	5/8	SK	5/8	BGR
4/20	MNK	5/1	SK	5/9	RCN	5/10	SK
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4/25	SK	5/5	RCN	5/15	SK	5/13	RCN
4/25	SK	5/5	SK	5/16	SK	5/13	RCN
4/26	BGR	5/5	SK	5/16	RCN	5/13	RCN
4/26	SK	5/5	SK	5/17	SK	5/13	RCN
4/27	SK	5/5	RCN	5/17	SK	5/13	RCN
4/28	SK	5/5	SK	5/17	SK	5/13	FX

4/28	RCN	5/5	SK	5/18	SK	5/13	SK
4/28	SK	5/6	FX	5/18	SK	5/13	SK
4/29	RCN	5/6	SK	5/18	MNK	5/13	SK
4/29	RCN	5/7	SK	5/18	RCN	5/13	SK
4/29	SK	5/7	RCN	5/19	RCN	5/13	SK
4/29	MNK	5/8	RCN	5/20	SK	5/13	SK
4/29	SK	5/8	RCN	5/20	SK	5/13	SK
4/30	RCN	5/8	SK	5/20	SK	5/16	RCN
4/30	MNK	5/9	RCN	5/20	SK	5/16	RCN
4/30	FX	5/9	SK	5/20	SK	5/16	RCN
4/30	SK	5/10	SK	5/20	RCN	5/16	RCN
4/30	COY	5/10	RCN	5/20	SK	5/16	SK
5/2	COY	5/10	RCN	5/20	SK	5/16	SK
5/2	BGR	5/11	SK	5/21	SK	5/16	SK
5/2	RCN	5/12	SK	5/22	RCN	5/16	SK
5/2	RCN	5/12	SK	5/22	SK	5/18	SK
5/3	RCN	5/13	RCN	5/22	SK	5/18	SK
5/4	RCN	5/15	RCN	5/22	SK	5/18	SK
5/4	MNK	5/15	SK	5/23	SK	5/18	RCN
5/6	FX	5/15	COY	5/23	SK	5/18	RCN
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5/14	SK	5/18	SK	5/26	SK	5/20	SK
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5/17	RCN	5/20	SK	5/28	SK	5/20	SK
5/17	RCN	5/21	RCN	5/28	SK	5/20	SK
5/18	COY	5/21	SK	5/29	SK	5/20	SK
5/18	SK	5/21	SK	6/1	RCN	5/20	FX
5/18	RCN	5/22	RCN	6/1	RCN	5/20	FX
5/19	SK	5/22	RCN	6/1	SK	5/20	FX
5/19	SK	5/22	RCN	6/1	RCN	5/20	FX
5/19	BGR	5/23	SK	6/1	RCN	5/20	FX
5/20	SK	5/23	RCN	6/1	SK	5/20	FX
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5/21	FX	5/25	SK	6/2	SK	5/21	SK
5/21	RCN	5/25	RCN	6/2	RCN	5/21	SK
5/22	SK	5/26	RCN	6/2	RCN	5/21	SK
5/22	RCN	5/26	RCN	6/4	RCN	5/21	FX
5/23	RCN	5/26	SK	6/4	RCN	5/22	RCN
5/23	BGR	5/26	RCN	6/5	BGR	5/22	RCN

5/24	RCN	5/26	RCN	6/5	SK	5/22	SK
5/24	FX	5/27	BGR	6/6	RCN	5/22	SK
5/25	RCN	5/27	RCN	6/7	SK	5/24	SK
5/25	RCN	5/27	BGR	6/8	RCN	5/24	SK
5/25	RCN	5/28	SK	6/8	SK	5/24	SK
5/25	RCN	5/28	MNK	6/8	SK	5/24	SK
5/25	RCN	5/29	RCN	6/9	SK	5/24	RCN
5/25	RCN	5/29	RCN	6/9	SK	5/25	RCN
5/25	RCN	5/31	RCN	6/9	SK	5/26	RCN
5/28	FX	5/31	SK	6/10	RCN	5/26	RCN
5/26	SK	6/1	RCN	6/10	RCN	5/26	RCN
5/27	SK	6/1	RCN	6/11	RCN	5/26	RCN
5/27	SK	6/2	SK	6/12	SK	5/26	RCN
5/27	COY	6/3	BGR	6/14	SK	5/26	RCN
5/27	BGR	6/4	SK	6/14	SK	5/26	SK
5/28	FX	6/5	SK	6/14	SK	5/26	SK
5/28	FX	6/5	RCN	6/15	FX	5/26	SK
5/28	SK	6/6	BGR	6/16	RCN	5/26	SK
5/28	BGR	6/7	SK	6/17	RCN	5/26	SK
5/28	RCN	6/8	RCN	6/17	RCN	5/26	SK
5/28	RCN	6/9	SK	6/18	SK	5/26	SK
6/1	RCN	6/10	SK	6/19	BGR	5/26	SK
6/1	FX	6/12	RCN	6/19	RCN	5/27	SK
6/1	FX	6/13	SK	6/20	SK	5/27	SK
6/1	RCN	6/14	FX	6/20	SK	5/27	SK
6/1	RCN	6/14	FX	6/21	RCN	5/27	SK
6/2	SK	6/15	FX	6/21	RCN	5/27	RCN
6/3	SK	6/15	FX	6/21	SK	5/27	RCN
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6/5	RCN	6/15	RCN	6/23	SK	5/28	RCN
6/5	SK	6/16	SK	6/25	SK	5/28	SK
6/6	SK	6/16	BGR	6/26	SK	5/28	SK
6/6	RCN	6/17	BGR	6/27	RCN	5/28	FX
6/7	SK	6/18	SK	6/30	SK	5/28	FX
6/7	FX	6/19	BGR	7/2	RCN	5/28	FX
6/7	FX	6/19	BGR	7/4	RCN	5/29	RCN
6/7	FX	6/20	RCN	7/5	RCN	5/29	RCN
6/7	FX	6/21	SK	7/6	RCN	5/29	SK
6/7	FX	6/22	BGR	7/6	SK	5/29	SK
6/7	FX	6/22	RCN	7/6	SK	6/1	SK
6/8	FX	6/23	BGR	7/6	MNK	6/1	SK
6/8	FX	6/24	SK	7/8	RCN	6/1	SK
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7/14	RCN
7/15	RCN

ATTACHMENT 14

Site - 2004	Mayfield (%)	95% CI
Benson Trap (Harlow) (n = 136)	**42.80**	**33.38 – 54.78**
- Mallard (n = 46)	50.65	33.53 – 76.15
- Gadwall (n = 26)	35.87	19.22 – 66.20
- Blue-winged teal (n = 23)	38.37	21.43 – 68.05
Benson Control (Harlow) (n=145)	**36.62**	**28.10 – 47.63**
- Mallard (n = 25)	29.41	13.44 – 63.24
- Gadwall (n = 18)	40.69	20.48 – 79.78
- Blue-winged teal (n = 77)	36.04	24.94 – 51.91
Walsh Trap (n = 340)	**43.14**	**37.06 – 48.38**
- Mallard (n = 34)	42.09	24.25 – 72.45
- Gadwall (n = 49)	36.90	24.06 – 56.31
- Blue-winged teal (n = 212)	47.74	40.08 – 56.80
Walsh Control (n = 208)	**27.44**	**21.48 – 35.01**
- Mallard (n = 48)	23.66	12.90 – 42.94
- Gadwall (n = 14)	40.92	19.57 – 84.24
- Blue-winged teal (n = 117)	27.60	20.17 – 37.66

****Confidence limits for nest success are asymmetrical because they are derived exponentially.** (Klett, A.T., H.F. Duebbert, C.A. Faanes, and K.F. Higgins. 1986. Techniques for studying nest success of ducks in upland habitats in the prairie pothole region. 24 p. U.S. Fish and Wildl. Serv. Resour. Publ.; 158.)

ATTACHMENT 15

Nest Fate Summary Table - 2004

Nest Fate	Abandoned				Destroyed		Nonviable		Unknown			Total
Cause of Failure	Investigator	Predator	Unknown	Other	Predator	Other	Predator	Unknown	Lost	Terminated	Successful	nests
Benson Trap	4	2	10	-	45	4 - flooding	-	-	2	2	67	136
Benson Control	6	4	7	-	54	3 - flooding	1	-	-	9	61	145
Walsh Trap	5	11	5	1	112	2 – tractor, ATV	-	2	3	13	186	340
Walsh Control	5	8	2	-	101	3 - flooding	3	2	-	-	84	208

Categorical Explanation:

Abandoned:

- Investigator: All incidents occurred during egg laying stage. Same number of eggs present (less than full clutch) in nest bowl on subsequent nest checks and no hen present.
- Predator: Occurred either during egg laying or incubation. Fewer eggs present (typically less than three eggs missing) on subsequent nest checks and no hen present.
- Unknown: Cause of abandonment unknown.
- Other: Detailed in table.

Destroyed:

- Predator: Evidence present linking destruction of nest to either mammalian or avian predation.
- Other: Detailed in table.

Nonviable:

- Unknown: Hen present and incubating eggs that are not advancing in growth stage.

Unknown:

- Lost: Previously sampled nest unable to be relocated.
- Terminated: Technician field season ended prior to nest hatching or being destroyed.